

FIGURE 6 – TYCO FIRE PRODUCTS NAMEPLATE PART NO. PC551235 PCL-300 AGENT TANK



Given that the Tyco Fire Products nameplate, Part No. PC551235 [Bates, DPSvcs-Buono-000114] that TFP affixes to the model PCL-300 Agent Tank 3.0-gallon cylinder assembly is in compliance with NFPA Standards, and a similar nameplate affixed to the TFP model PCL-300T Test Tank, Part No. 551204 that ruptured could be equally compliant with NFPA Standards;

Therefore, Tyco Fire Products has failed in their Duty to Warn. The tank ruptured in the subject incident, model PCL-300T Test Tank Part No. 551204 had no labels of any kind affixed to the product.

Therefore, Tyco Fire Products (TFP) has failed in their Duty to Warn. Without warning labels or manuals with instructions directly related to the TFP model PCL-300T Test Tank, Part No. 551204 that ruptured during the subject incident. Tyco Fire Products has not used either of the two traditional methods to communicate danger, while warning labels and instructions are not exclusive methods of communicating danger, TFP has not attempted to use any other method(s) to fulfill their Duty to Warn.

Therefore, Tyco Fire Products failure in their Duty to Warn could potentially be mitigated by affixing nameplates and warning labels. The TFP model PCL-300T Test Tank, Part No. 551204 that ruptured during the subject incident has nameplates or warning labels. Manufacturers commonly use nameplates and labels to communicate dangers. Nameplates and warning labels are reasonable and not unduly burdensome as evidenced by Tyco Fire Products nameplate Part No. PC551235 [Bates, DPSvcs-Buono-000114] that is affixed to the TFP model PCL-300 Agent Tank 3.0-gallon cylinder assembly another component of the Kitchen Knight® II Restaurant Kitchen Fire Suppression System that

is very similar to the unlabeled TFP model PCL-300T Test Tank, Part No. 551204 that ruptured during the subject incident.

Therefore, Tyco Fire Products (TFP) is not in compliance with NFPA Standards. Information that is required by NFPA Standards to be shown on the nameplate permanently affixed to the fire extinguisher or fire suppression system component is not available because there is no nameplate or label permanently affixed to the TFP Kitchen Knight® II Restaurant Kitchen Fire Suppression System component, TFP model PCL-300T Test Tank, Part No. 551204 that ruptured during the subject incident.

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9 Data Power Services, LLC Opinions

The observations and opinions expressed in this report are those of Thomas F Taranto the majority owner and general partner of Data Power Services, LLC.

Tom has extensive experience in design and application of fluid power systems both hydraulic and pneumatic. He is an independent fluid power system professional with more than 40 years of experience providing services to industrial clients, utilities, and energy agencies. Tom's work involves compressed air system design, air compressor application, and performance of related compressed air system components. He conducts compressed air system assessments, equipment testing, and compressed air system training throughout the world.

Mr. Taranto is a graduate of Clarkson University, with a Bachelor Degree in Mechanical Engineering. He is a member of ASME, AFE and is past President of the Fluid Power Society, Chapter 21 Syracuse, NY. Additional details related to Tom's experience and expertise is provided in his Cv provided in Appendix C of this report.

Tom is a Compressed Air Challenge technical committee member and Qualified Instructor for both CAC Fundamentals and Advanced Training. He is a US Department of Energy (DOE) Sr. Instructor for Qualified Specialist, and a DOE Energy Expert. Tom is Co-Vice Chair and team member for ASME Standard EA-4-2010 "Assessment for Compressed Air Systems". He is a technical committee member of the International Organization for Standardization, technical advisory group Energy Management for Air compressors and compressed air systems. The committee is responsible for Standard ISO-11011 "Compressed air – energy efficiency – assessment" (committee TC118/SC6/WG4).

9.1 Ongoing Discovery:

9.1.1 Right to Amend this Report:

As discovery in this matter is on-going, I reserve the right to amend or supplement this report upon discovery of additional facts or documents material to my evaluation.

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10 Data Power Services, LLC Investigation and Analysis

The information, investigation, analysis documented in; and opinions expressed in; this report are based on my expert knowledge and review of the depositions, exhibits, and discovery documents provided and reviewed. Appendix B of this report provides a listing of the materials reviewed as of the time this report was completed.

On the basis of my more 40 years of fluid power experience and my knowledge with respect to industrial compressed air systems and related equipment, along with my educational background holding a Bachelor of Science Degree in Mechanical Engineering; the accuracy and certainty of facts presented here-in are within reasonable limits based on the validity of information provided to me and reasonable scientific and engineering practice. My investigation, analysis, and opinions documented in this report are correct and valid within a reasonable degree of certainty.

If called to testify in court, or other legal proceeding, I will be prepared to explain and provide additional detail and reasoning related to my investigation, analysis, and opinions.

I reserve the right to amend this report and/or alter the analysis and opinions presented, or both, on the basis of additional new information, or changes to and clarification of the existing information that may be provided to me in the future.

Respectfully Submitted

Data Power Services, LLC

A handwritten signature in black ink, appearing to read "Thomas F. Taranto". The signature is fluid and cursive, with the first name "Thomas" and last name "Taranto" clearly distinguishable.

Thomas F Taranto, B.S.M.E

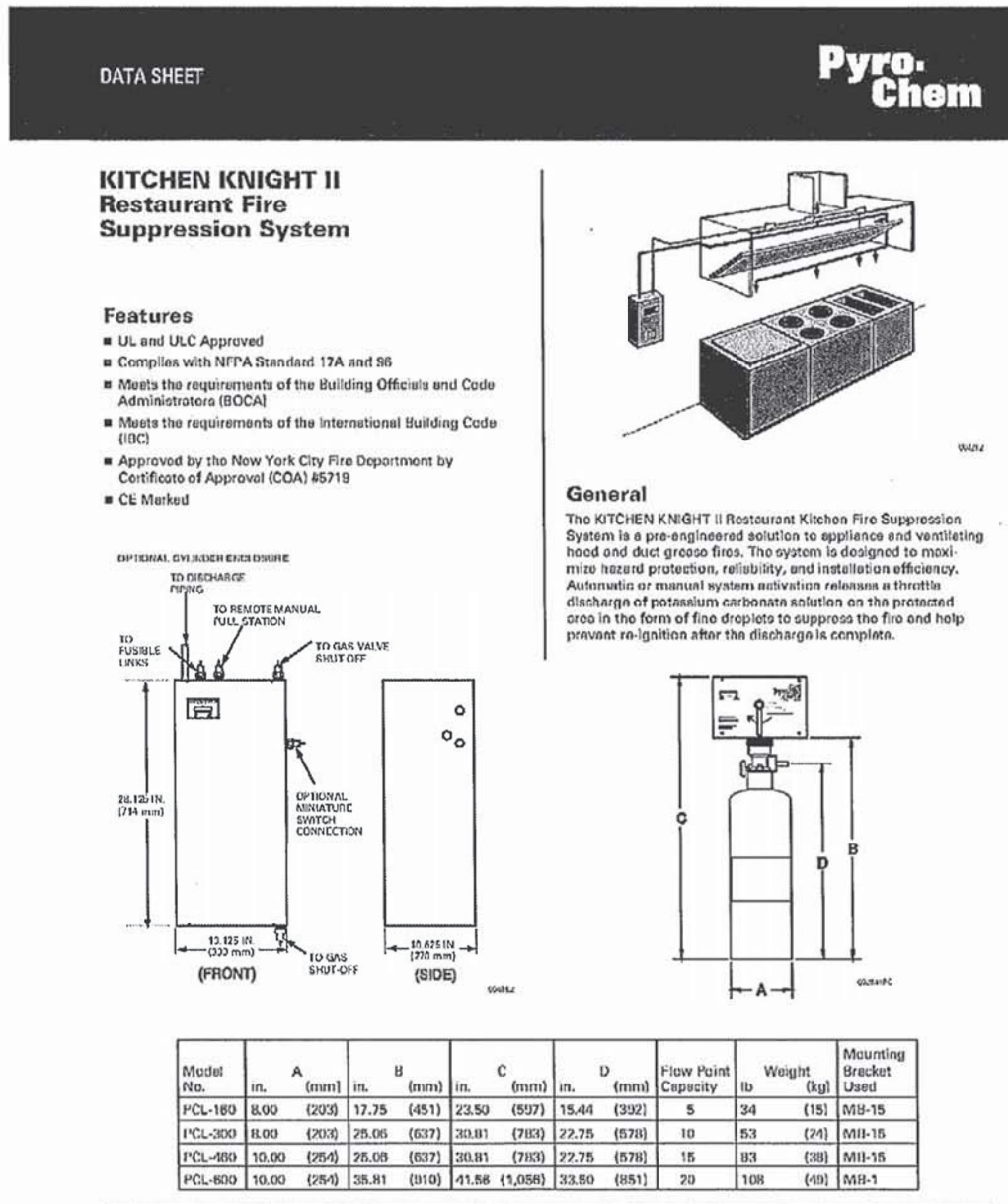
General Partner

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Appendix A. Restaurant Fire Suppression System Literature

A1. Kitchen Knight II® Data Sheet

FIGURE 7 – DPSVCS-BUONO-000101 - KITCHEN KNIGHT II® DATA SHEET



One Station Street | Mainville, WI 54143 7842, USA | +1 215 735 7411 | www.pyrochem.com
 © 2017 Johnson Controls. All rights reserved. All specifications and other information shown were current as of document revision date and are subject to change without notice. | Form No. PC2001087 B7

**Johnson
Controls**
 DPSVCS-BUONO-000101

FIGURE 8 – DPSVCS-BUONO-000102 - KITCHEN KNIGHT II® DATA SHEET

System Operation

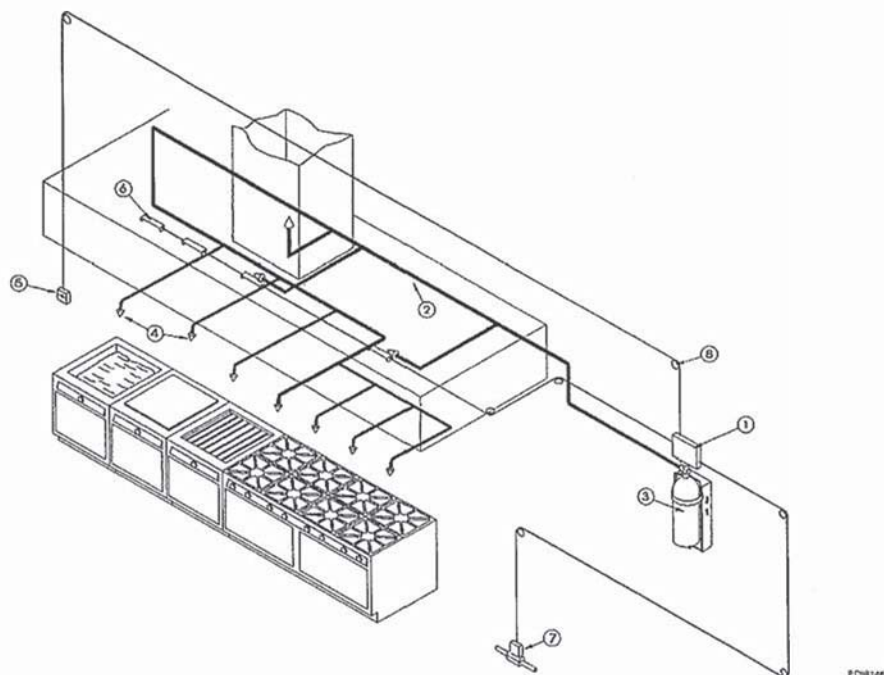
The KITCHEN KNIGHT II Restaurant Kitchen Fire Suppression System has been designed for protecting kitchen hood, plenum, exhaust duct, grease filters, and cooking appliances (such as fryers, griddles, rangetops, upright broilers, charbroilers and woks) from grease fires. The versatile state-of-the-art wet chemical distribution technique, combined with dual, independent activation capability – automatic fusible link or manual release – provides efficient, reliable protection the moment a fire is detected. Once initiated, the pressurized wet chemical extinguishing agent cylinder discharges a potassium carbonate solution through a pre-engineered piping network and out the discharge nozzles. The wet chemical discharge pattern is maintained for a duration of time to ensure suppression and inhibit re-ignition. Expanded capability provides remote manual actuation, gas equipment shutdown, and electrical system shutdown. This optional equipment will enhance the basic system functions and be applicable when designing custom configurations to suit a particular customer's needs and/or comply with local codes.

The operating temperature range of the PYRO-CHEM KITCHEN KNIGHT II System is 32 °F to 120 °F (0 °C to 49 °C).

Suggested Architect's Specifications

The fire suppression system shall be of the stored pressure, wet chemical pre-engineered fixed nozzle type manufactured by Johnson Controls. A carbon dioxide cartridge shall be used as the pneumatic releasing device for the system. The cartridge shall be an integral part of the control head assembly. The wet chemical storage cylinder shall be a DOT-rated cylinder for stored pressure of 225 psig (15.5 bar), and a pressure gauge shall be provided on the cylinder valve for visual inspection. The system shall be capable of automatic and manual actuation. Automatic actuation shall be provided by an appropriate number of fusible link detectors mounted in series on a stainless steel wire input line to the control head. Manual actuation shall be provided by turning a handle on the cylinder control head cover, if available, and/or remotely by a cable operated pull station with a dedicated stainless steel line connected between the pull station and the control head mechanism.

The system shall have been tested to the UL Standard for Fire Extinguishing Systems for Protection of Restaurant Cooking Area, UL300, and Listed by Underwriters Laboratories, Inc. It shall be installed in accordance with the National Fire Protection Association standards, NFPA 17A Standard for Wet Chemical Systems, and NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, and comply with all local and/or state codes and standards. Refer to PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System Manual, Part No. 551274, for detailed installation and maintenance instructions.

Typical Installation

DPSVCS-Buono-000102

FIGURE 9 – DPSVCS-BUONO-000103 - KITCHEN KNIGHT II® DATA SHEET

Typical Installation (Continued)

1. **Cylinder Control Head** – Integral design allows direct connection of the actuation pressure cylinder to the control head without the need of high pressure hose or pipe. Separate wire cable activation lines for automatic fusible links and remote pull station provide an added measure of safety. Unique technique for achieving necessary input wire cable tension.
2. **Piping** – Unbalanced piping network simplifies application design and installation. Requires no additional piping to connect system pressure cylinder to extinguishing agent container. Schedule 40 black iron, chrome-plated, or stainless steel pipe can be used.
3. **Cylinders** – Contain PYRO-CHEM Potassium Carbonate wet chemical solution stored at 225 psig (15.5 bar). Includes pressure gauge for visual maintenance checks. 1.6, 3.0, 4.6, and 6.0 gallon sizes provide 5, 10, 15, and 20 flow point coverage respectively, offering a broad range of application coverage.
4. **Nozzles** – Can be fixed or fitted with a swivel adaptor allowing the nozzle to be rotated approximately 30° in all directions.
5. **Remote Manual Pull Station** – Simple operating instructions with double action release minimizes accidental manual operation of the system. Maximum limitations of 150 ft (45.7 m) cable run with 1/16 in. cable and 40 corner pulleys apply. A dedicated wire cable input line to the cylinder control head provides manual operation in addition to automatic operation utilizing fusible link detection. The pull station is compatible with flexible conduit.
6. **Fusible Link Detection Equipment** – Accommodates both series and terminal placement to minimize inventory and simplify ordering. All necessary components are included for efficient assembly and installation. Fusible links rated for maximum ambient temperature must be ordered separately. Maximum limitations of 20 fusible links on a 150 ft (45.7 m) cable run with 40 corner pulleys provide substantial hazard coverage.
7. **Automatic Gas Shut-Off Valve** – Complies with requirements pertaining to the shut off of fuel as described by NFPA 17A. Can be reset at control head after regular maintenance/service check for convenience of service technician. Maximum limitations of 100 ft (45.7 m) cable run with 30 corner pulleys provide mounting flexibility. The gas shut-off valve is compatible with flexible conduit.
8. **Corner Pulleys And Accessories** – Designed to ensure reliable system function as tested by Underwriters Laboratories.
9. **Agent Distribution Hose (Not Shown)** – Kitchen appliances manufactured with or resting on caster (wheels/rollers) include an agent distribution hose as a component of the suppression system. This allows the appliance to be moved for cleaning purposed without disconnecting the appliance fire suppression protection. The hose assembly includes a restraining cable kit to limit the appliance movement within the range (length) of the flexible hose.
10. **Flexible Conduit (Not Shown)** – Flexible conduit allows for quicker installations and the convenience of being able to route the cable over, under and around obstacles. Flexible conduit can be used as a substitute for standard EMT conduit or can be used with EMT conduit. Flexible conduit can be used only with the Remote Manual Pull Station and Mechanical Gas Valves.

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

PYRO-CHEM, KITCHEN KNIGHT, and the product names listed in this material are marks and/or registered marks. Unauthorized use is strictly prohibited.

DPSVcs-Buono-000103

FIGURE 10 – DPSVCS-BUONO-000104 - KITCHEN KNIGHT II® DATA SHEET



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DPSvcs-Buono-000104

A2. Kitchen Knight II® Product Overview

FIGURE 11 – DPSVcs-BUONO-000105 – KITCHEN KNIGHT II® PRODUCT OVERVIEW

PRODUCT OVERVIEW
Pyro-Chem





KITCHEN KNIGHT II Fire Suppression System

Maximize kitchen hazard protection, reliability and installation efficiency

- Customized appliance-specific design
- Wet agent technology
- Rapid flame knock-down
- Helps prevent reflash
- Flexible piping configurations
- Automatic detection and actuation
- Gas shut off valve
- UL/ULC listed

A mixture of flammable oils and greases with high efficiency heat sources creates an environment where restaurant and food service kitchen fires are continually a threat. With its wet agent technology, the PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System provides flexible, effective fire protection.

Time-Tested Kitchen Hazard Protection

The KITCHEN KNIGHT II Restaurant Fire Suppression System is a pre-engineered solution to appliance, ventilating hood and duct fires. The system employs a potassium carbonate-based wet agent that knocks down flames, cuts off air to the burning grease and cools the hazard area to help prevent reflash.

The system is designed to protect cooking appliances such as fryers, griddles, range tops, upright broilers, charbroilers and woks; and associated ventilating equipment including kitchen hoods, plenums, exhaust ducts and grease filters.

System Design Accommodates Kitchen Design

The KITCHEN KNIGHT II system is available in a variety of sizes suited to fit specific needs with flexibility to accommodate changes to appliance layout or the expansion of a cooking area. Flexible piping configurations offer a streamlined design that preserves valuable kitchen space.

The flexible agent distribution hose provides the freedom to clean beneath and behind castered appliances without disconnecting fire suppression piping. The hose allows up to 3 ft. (0.9 m) of movement and is supplied with a restraining cable to help prevent over-extension.

The system complies with NFPA Standard 17A and 96. Additional approvals and listings include UL, ULC, and NYC COA.



DPSVcs-Buono-000105

FIGURE 12 – DPSVCS-BUONO-000106 – KITCHEN KNIGHT II® PRODUCT OVERVIEW



**APPLICATIONS FOR THE
KITCHEN KNIGHT II FIRE
SUPPRESSION SYSTEM**

Diners
Cafes
Casual and fine dining
Convenience stores
Delis
Fast food
Food courts
Food trailers and trucks

Guarding Hazard Areas 24/7

The KITCHEN KNIGHT II system provides efficient, reliable protection the moment a fire is detected via a versatile wet chemical distribution network, combined with dual, independent actuation capability. Automatic or manual system actuation releases a discharge of agent on the protected area in the form of fine droplets to suppress fire and help prevent reflash. The dedicated manual pull station allows immediate actuation and provides backup to the automatic detection system.

For added protection, KITCHEN ONE K-Class hand portable fire extinguishers, which utilize the same wet chemical agent, may be used as a backup to the system.

Superior Fire Protection for Countless Applications

Restaurant kitchens, gas stations, paint spray booths and countless other commercial and industrial applications are protected by PYRO-CHEM automatic suppression systems and fire extinguishers. Ask your Authorized PYRO-CHEM Distributor to provide the right solution for your fire protection challenges.

A Passion for Protection

Dedicated customer support. Extensive product portfolio. Engineering excellence. Trusted, proven brands. Johnson Controls offers all of these attributes, plus a passion for protection. It's what drives us to create solutions to help safeguard what matters most – your valued people, property and business.

Johnson Controls ■ One Stanton Street, Marinette, WI 54143-2542, USA ■ Tel: +1 715 735 7411
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Controls**
DPSVCS-Buono-000106

A3. Integrated Fire Protection Company Profile

FIGURE 13 – DPSVCS-BUONO-000107 INTEGRATED FIRE PROTECTION - KITCHEN FIRE SUPPRESSION

Integrated Fire Protection Company Profile – Atlanta GA


<http://integratedfireprotection.com/restaurant-kitchens-markets/>



Integrated Fire Protection®
THE LIFE SAFETY PROFESSIONALS®

HOME COMPANY PROFILE PRODUCTS AND SERVICES MARKETS WE SERVE NEWS AND VIEWS MY INSPECTION REPORTS

CONTACT US



Restaurant / Kitchen Fire Suppression

Expertise in Restaurant / Kitchen Fire Suppression Systems

In today's restaurants and commercial kitchens, the use of high-temperature cooking oils, solid fuels and high-efficiency kitchen equipment allows more food to be produced faster. However, along with the speed and efficiency come increased fire hazards. Kitchen fire suppression systems are designed to detect and extinguish fires in the duct, plenum and/or appliances located under the kitchen hood. The expert staff at Integrated Fire Protection® will work with you to select and size the appropriate kitchen suppression system to match your needs and budget. Integrated Fire Protection® is proud to offer several of the most trusted and respected manufacturers in our industry.

Once the kitchen suppression system is installed, the professionals at Integrated Fire Protection® will help keep your restaurant safe and open for business through proper inspection, testing and maintenance. So, whether we guide you from initial consultation, design and installation or you have an existing Ansul system, or any other brand (Amex, PyroChem or RangeGuard, you can be assured our ICC- (International Code Council) certified technicians will provide you with superior service and care.

Code Reference

NFPA 17A (Standard for Wet Chemical Extinguishing Systems)
NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations)

Products and Services:

- All Products and Services
- Portable Fire Extinguishers
- Exit and Emergency Lighting
- Restaurant/Kitchen Fire Suppression
- Fire Sprinkler Systems
- Fire Alarm Systems
- Special Hazard Fire Protection
- Emergency Communication Systems
- Security Systems
- Video Surveillance Systems
- Access Control
- Monitoring
- General Products

We Proudly Represent:

DPSVCS-BUONO-000107

FIGURE 14 – DPSVCS-BUONO-000108 INTEGRATED FIRE PROTECTION – AUTHORIZED DEALER

<http://integratedfireprotection.com/company-profile/>

The screenshot displays the 'Top Industry Solutions' section of the Integrated Fire Protection website. It features a grid of logos for various fire protection manufacturers, including Fike, Protectowire, Sevco Systems, Gamewell, Vigilant, CWSi, Hochiki, Viking, Globe, Reliable, Kidde, Badger, Range Guard, Brooks Equipment, Buckeye, and Potter Boomer Fire Pro. To the right of the logos, there are two testimonials. The first testimonial, attributed to ASIG, praises the company's performance and the support provided. The second testimonial, attributed to chico's, highlights the company's long-standing relationship and commitment to safety.

Top Industry Solutions

Integrated Fire Protection® provides our clients solutions from Engineering, Design, Fabrication, Installation, to Inspection, Testing and Maintenance of all Fire and Life Safety Systems. We are Authorized Dealers of the Following Manufacturers:

Fike **PROTECTOWIRE®** **SEVCO SYSTEMS**

Gamewell **VIGILANT** **CWSi**
by Honeywell

HOCHIKI **VIKING** **GLOBE**

Reliable **Kidde** **Badger**

RANGE GUARD **BROOKS EQUIPMENT** **BUCKETE**

POTTER BOOMER FIRE PRO

over a decade, and they consistently perform at a very high level. Due to the nature of our business, missed inspections are not an option. We are subject to rigorous oversight by regulatory agencies and, as such, the relationship we have with Integrated Fire Protection® is very important to our business operations."

ASIG

"In working with Integrated Fire Protection® for nearly 14 years, we have found them to be a trusted vendor that provides our operation with the support we need to ensure we are kept compliant with all Fire and Life Safety codes. Integrated Fire Protection® seamlessly manages all facets of our fire protection systems, covering our entire Georgia campus."

chico's

"We have been working with Integrated Fire Protection® for well over a decade and have an outstanding working relationship. They consistently execute the service that we need to keep our plant safe and up to code. They are a trusted service provider that we can depend on."

DPSVCS-BUONO-000108

FIGURE 15 – DPSVCS-BUONO-000107 INTEGRATED FIRE PROTECTION – SERVICE OTHER BRANDS

<http://integratedfireprotection.com/company-profile/>

The screenshot shows the 'COMPANY PROFILE' page of Integrated Fire Protection. The header includes navigation links: HOME, COMPANY PROFILE, PRODUCTS AND SERVICES, MARKETS WE SERVE, NEWS AND VIEWS, MY INSPECTION REPORTS, and CONTACT US. Below the header, a section titled 'We also sell and service other industry brands such as:' displays a grid of logos for various brands: ANSUL, NOTIFIER by Honeywell, safe fire, ADEMCO, AMEREX, Simplex, EST, FFAST, xtralis VESDA, SPECTREX INC., Larsen's, and KEY. To the right of the logo grid, there are three testimonials from clients, each followed by their title: Facility Manager and two Property Managers. At the bottom of the main content area, a paragraph states: 'In choosing to partner with an industry-leading Total Solutions Provider like Integrated Fire Protection[®], you will receive our comprehensive products and services professionally performed by our own certified, licensed, uniformed and badged employees. We commit to deliver our products and services with the highest level of excellence and professionalism. We value our long-standing client relationships and take the business of protecting lives and property very seriously.'

We also sell and service other industry brands such as:

ANSUL
Innovative Fire Solutions

NOTIFIER
by Honeywell

safe fire

ADEMCO
AMEREX

Simplex

EST
FAAST

xtralis
VESDA

SPECTREX INC.

Larsen's

KEY
CORPORATION

Nestlé PURINA

"Thank you so much for getting out and repairing [our systems] so quickly. I really appreciate that you were able to work so quickly and recognized the challenges you were up against at the time."

Facility Manager

"Your crew was phenomenal and we are so appreciative of you!"

Property Manager

"Your guys did fantastic! The guys were great and worked very hard."

Property Manager

In choosing to partner with an industry-leading Total Solutions Provider like Integrated Fire Protection[®], you will receive our comprehensive products and services professionally performed by our own certified, licensed, uniformed and badged employees. We commit to deliver our products and services with the highest level of excellence and professionalism. We value our long-standing client relationships and take the business of protecting lives and property very seriously.

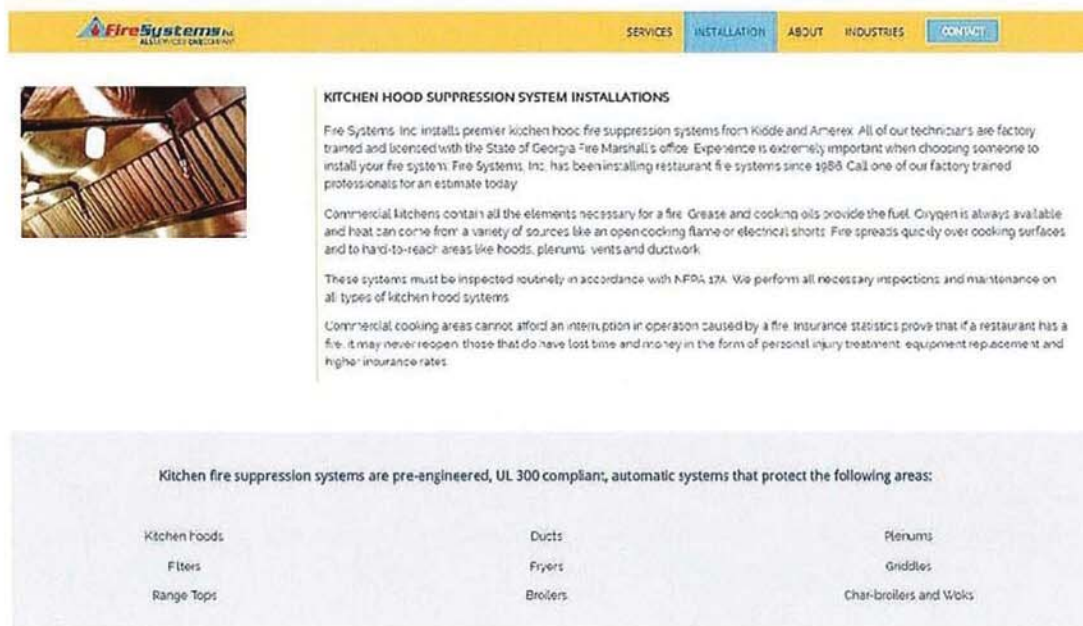
DPSVcs-Buono-000109

A4. Fire Systems Inc.

FIGURE 16 – DPSVCS-BUONO-000110 FIRE SYSTEMS INC - INSTALLATIONS

Fire Systems Inc Installations, inspections, and maintenance

<https://firesystems.net/installation/kitchen-hood-installation/>



KITCHEN HOOD SUPPRESSION SYSTEM INSTALLATIONS

Fire Systems, Inc. installs premier kitchen hood fire suppression systems from Kidde and Amerex. All of our technicians are factory trained and licensed with the State of Georgia Fire Marshall's office. Experience is extremely important when choosing someone to install your fire system. Fire Systems, Inc. has been installing restaurant fire systems since 1988. Call one of our factory trained professionals for an estimate today.

Commercial kitchens contain all the elements necessary for a fire. Grease and cooking oils provide the fuel. Oxygen is always available and heat can come from a variety of sources like an open cooking flame or electrical shorts. Fire spreads quickly over cooking surfaces and to hard-to-reach areas like hoods, plenums, vents and ductwork.

These systems must be inspected routinely in accordance with NFPA 17A. We perform all necessary inspections and maintenance on all types of kitchen hood systems.

Commercial cooking areas cannot afford an interruption in operation caused by a fire. Insurance statistics prove that if a restaurant has a fire, it may never reopen. Those that do have lost time and money in the form of personal injury treatment, equipment replacement and higher insurance rates.

Kitchen fire suppression systems are pre-engineered, UL 300 compliant, automatic systems that protect the following areas:

Kitchen Hoods	Ducts	Plenums
Filters	Fryers	Griddles
Range Tops	Broilers	Char-broilers and Woks

DPSVCS-BUONO-000110

FIGURE 17 – DPSVCS-BUONO-000111 FIRE SYSTEMS INC - MAINTENANCE

<https://firesystems.net/inspections/kitchen-hood/>



Inspections are performed using Fire Systems technicians—with no sub-contracting; this gives us better control over the quality of service we are able to provide.



KITCHEN HOOD SUPPRESSION SYSTEM INSPECTIONS

Commercial kitchens contain all the elements necessary for a fire. Grease and cooking oils provide the fuel. Oxygen is always available and heat can come from a variety of sources like an open cooking flame or electrical units. Fire spreads quickly over cooking surfaces and is hard to reach areas like hoods, plenums, vents and ductwork.

These systems must be inspected routinely in accordance with NFPA 97A. **We perform all necessary inspections and maintenance on all types of kitchen hood systems.**

Commercial cooking areas cannot afford an interruption in operation caused by a fire. Insurance statistics prove that if a restaurant has a fire, it may never reopen; those that do have lost time and money in the form of personal injury treatment, equipment replacement and higher insurance rates.

In recent years, the development of high-efficiency cooking appliances and a switch to vegetable cooking oils have increased the threat, and occurrence of fires that are more difficult to extinguish. Since many commercial kitchens operate long hours and are staffed with people untrained in firefighting, it is imperative to have a fire protection system that combines both automatic fire detection and suppression.



DPSVCS-Buono-000111

Analysis & Findings: Franklin Buono – v. – Poseidon Air Systems, et al.

January 8, 2020

Page A-87

By: Data Power Services, LLC – Tom Taranto

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Appendix B. Depositions, exhibits, and discovery reviewed

This Appendix is a listing of the materials reviewed as of the time this report was completed. Not all documents are reviewed with equal weight, time, and effort. It is possible that the review of some documents maybe limited to identification and cataloging of the document without any additional detailed review.

Documents are included as given to me including but not limited to evidence, transcripts of testimony, photos supplied (or taken during equipment and site inspection visits), and other discovery documents. Additionally, documents and materials may include public domain literature, texts, commercial product literature, trade articles, white papers, advertising materials, web pages, and the like.

References to documents include various identifying information potentially including the following.

File Name – the computer file name and extension as found on Data Power Services' (DPSvcs) system of computers, and file servers. For information received from others, the file name is generally the original name of the computer file as transmitted to DPSvcs.

Title – a descriptive title for the document providing a description of the information included in the file.

Bates Number – If the document has been indexed with Bates Numbering or Bates Stamping as digital uniquely identifiable page label; the file name or title or both may include reference to the Bates reference.

Documents produced by Data Power Services, LLC are cataloged in Appendix B Section B3 below. These documents have Bates Numbering references as assigned by DPSvcs and are listed by file name.

B1. List of deposition and/or statement transcripts

OSHA Statement - Frank Buono April 18, 2016. File name "115414-01(286333) - Investigations - Investigation - DocID 8229155.PDF".

OSHA Statement - Christopher Foust April 6, 2016. File name "115414-01(286333) - Investigations - Investigation - DocID 8229161.PDF".

DEPOSITION of FRANKLIN BUONO. File name 4.30.2018 FranklinBuono.pdf

DEPOSITION of OPRANDY'S FIRE & SAFETY EQUIPMENT, by BRIAN SCOTT. File Name BrianScott_PDFTran.pdf 5/2/2018

DEPOSITION of ADAM R. MENOR director of engineering Johnson Controls
File name "09.12.19_Buono_A.Menor.pdf"

DEPOSITION of CURTIS N. HARDING Technical support Johnson Control's
File name "09.12.19_Buono_C.Harding.pdf"

AFFIDAVIT OF JIM GETTER, Worthington Cylinders, Corp. Senior Product Design Engineer. File name "Getter affidavit to Plaintiff (00791626x9E19F).docx" 5/8/2018

EXAMINATION BEFORE TRIAL of the Plaintiff, FRANKLIN BUONO. File name 07.23.2019_Pltf._Franklin_Buono.pdf 7/23/2019

B2. List of Documents

2/12/2016	OSHA Inspection Number 1125359 115414-01(286333) - Investigations - Investigation - DocID 8228977.PDF
8/9/2016	OSHA Citation and Notification of Penalty 115414-01(286333) - Investigations - Investigation - DocID 8220455.PDF
8/16/2016	OSHA Regional News Brief - Region 2 115414-01(286333) - Investigations - Investigation - DocID 8224164.PDF
4/18/2016	OSHA - Statement Frank Buono 115414-01(286333) - Investigations - Investigation - DocID 8229155.PDF
2/12/2016	Notes NYSP# 6742537 115414-01(286333) - Investigations - Investigation - DocID 8229157.PDF
10/17/2016	OSHA Cover Ltr. Response FOIA# 16-078 115414-01(286333) - Investigations - Investigation - DocID 8229160.PDF
4/6/2016	OSHA Statement - Christopher Foust 115414-01(286333) - Investigations - Investigation - DocID 8229161.PDF
4/12/2017	Gauge Testing results & related docs 115414-01(286333) - Investigations - Investigation - DocID 8229165.PDF
5/5/2016	OSHA Evaluation of Ruptured Fire Suppression Tank OSHA-1.pdf
5/5/2016	OSHA Gauge Testing OSHA-part2.pdf
	OSHA Investigation File; Bates: Buno-Osha 0001-0141 Buono-Osha.pdf
11/1/1994	PyroChem PCL-240/250/550 Technical Manual Kitchen Knight TFP's Production [TFP-280809-000001 - 60] Kitchen Knight Technical Manual - 1998 (1).pdf
10/1/2001	PyroChem PCL-300/460/600 Technical Manual Kitchen Knight TFP's Production [TFP-280809-000061 - 113] Kitchen Knight II Technical Manual - 2001.pdf

12/1/2009	PyroChem PCL-300/460/600 Technical Manual Kitchen Knight Operation Manual_0.pdf
2/12/2016	NYSP Scene Photos TFP's Production [TFP-280809-000114 - 172] Photos of Scene from 02.12.16 Taken by NY State Police (1 of 2).PDF
2/12/2016	NYSP Scene Photos TFP's Production [TFP-280809-000173 - 231] Photos of Scene from 02.12.16 Taken by NY State Police (2 of 2).PDF
4/16/2018	Photos from 04.16.18 Evidence Exam (Provided by Stephen Hill).PDF TFP's Production [TFP-280809-000232 - 683] Photos from 04.16.18 Evidence Exam (Provided by Stephen Hill).PDF
4/16/2018	Photos from 04.16.18 Evidence Exam (Provided by Stephen Hill).PDF TFP's Production [TFP-280809-000232 - 683] Photos from 04.16.18 Evidence Exam (Provided by Stephen Hill).PDF
May 2018	Case No. 1:17-cv-05915-JFK-DCF AFFIDAVIT OF JIM GETTER Getter affidavit to Plaintiff (00791626x9E19F).docx
6/4/2018	DEFENDANT TYCO FIRE PRODUCTS LP'S SUPPLEMENTAL RESPONSE TO PLAINTIFF'S REQUEST TO PRODUCE DOCUMENTS TFP's Supp Responses to Plaintiff's Request to Produce.pdf
11/21/2018	DEFENDANT TYCO FIRE PRODUCTS LP'S RESPONSE TO PLAINTIFF'S DEMAND FOR DISCOVERY AND INSPECTION Defendant-Response-documents.PDF
9/12/2018	REQUEST FOR PRODUCTION OF DOCUMENTS Plaintiff-requests-2018-10-19.PDF
9/12/2018	DEPOSITION of ADAM R. MENOR director of engineering Johnson Controls 09.12.19_Buono_A.Menor.pdf
9/12/2018	DEPOSITION of CURTIS N. HARDING Technical support Johnson Controls 09.12.19_Buono_C.Harding.pdf

B3. List of Data Power Services, LLC Document Production

1. DPSvcs-Buono-000101 - 104 Kitchen Knight II® Data Sheet PC2001192-07.pdf
2. DPSvcs-Buono-000105 - 106 Product Overview PC2013172-02.pdf
3. DPSvcs-Buono-000107 - 109 Integrated Fire Protection Company Profile - Atlanta GA.pdf
4. DPSvcs-Buono-000110 - 111 Fire Systems Inc Installations - Inspections – Maintenance.pdf
5. DPSvcs-Buono-000112 - 114 TFP PCL-300T Test Tank and PCL-300 Agent Tank with nameplate.pdf
6. DPSvcs-Buono-000115 - 118 Pyro Chem Kitchen Knight II Owners Guide 01-22-2009 PN551017prn.pdf

Analysis & Findings: Franklin Buono – v. – Poseidon Air Systems, et al.

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Appendix C. Author's Professional Experience

C1. Thomas F. Taranto Cv

	Tom Taranto 3396 Patchett Road Baldwinsville, New York 13027 (315) 635 – 1445 (Home) (315) 635 – 1895 (Office) Email: TomTar@aol.com	Data Power Services, LLC 8417 Oswego Rd PMB-236 Baldwinsville, NY 13027 (315) 753 – 0070 (Office) (315) 447 – 2723 (Cell)
	Employment	
08/1998 – present	Data Power Services, LLC <i>Baldwinsville, NY</i> Air System Engineer; independent compressed air system solutions provider conducting training, system assessments, and compressed air system audits for a wide range of clients. Data Power Services, LLC which was formed in November of 2005 began in 1998 as a sole proprietorship providing independent compressed air system services. This independent consulting work was concurrent with other employment and was performed with the full knowledge and approval of employers at the time. Employment agreements recognized the independent work which was accounted for in salary arrangements.	
07/2000 – 07/2007	Pneumatech LLC – ConservAIR® Energy Products <i>Kenosha, WI</i> Sr. Air System Engineer, Compressed Air System Solutions: Provide support, training, and assistance to a nationwide network of compressed air system solutions providers. Develop methods, hardware, and software to facilitate the performance assessment of industrial compressed air systems. Evaluate, design and incorporate advanced compressed air management technology to achieve innovative solutions improving performance and decreasing energy use of industrial compressed air systems.	
1976 - 2000	Tri-Line Corporation <i>East Syracuse, NY</i> Division Manager, Air Power & Process Division: Direct and support sales & service of air compressors, dryers, and air management controls throughout Upstate New York. Provide direction and training to a team of outside sales engineers, service technicians, service management, and support personnel. Design and develop computer systems and data acquisition equipment to measure and monitor performance of hydraulic and pneumatic equipment and systems. Implement compressed air system monitoring with portable equipment for dynamic system analysis and air system performance audits. Design and implement compressed air monitoring equipment for long-term trend performance of industrial plant air systems. Incorporate stand-alone data acquisition or interface to existing building management network systems. Perform compressed air system performance audits on manufacturing facilities of various sizes throughout the United States.	
	Education	
1972 - 1975	Clarkson University <i>Potsdam, NY</i> B.S. Mechanical Engineering; 1975 <u>Soda Container / Consumer Waste Recycling</u> ; 1975 published paper ASME Student Chapter, presentation in Rochester, New York.	
1971 - 1972	Broome Tech Community College <i>Binghamton, NY</i> Engineering Science Major, Transferred to Clarkson University	
September 1984	Milwaukee School of Engineering Electronics for Fluid Power Specialist (4.4 CEU's)	

Professional Experience

American Society of Mechanical Engineers (ASME) Standard EA4-2010 Energy Assessment for Compressed Air Systems; Co-Vice Chair, lead co-author contracted with US Department of Energy to develop and edit compressed system assessment standard and guidance document EA4G-2010.

UNIDO Motor Systems Efficiency Supply Curves; 2010. Lead motor systems expert, compressed air systems; contributor to United Nations Industrial Development Organization report on energy efficiency potential of motor systems.

International Standards Organization (ISO) technical committee member; Air compressors and compressed air systems, TC118/SC6/WG4 Energy Management work group.

ESA Expert U.S. DOE Save Energy Now program; Dec 2006 – present. Contractor for the U.S. Department of Energy; conducting Energy Savings Assessments, and In Plant Training, for industrial compressed air systems.

UNIDO Industrial Motor System Efficiency Programme; 2002 - present. Instructor / Co-Author United Nations Industrial Development Organization compressed air system efficiency training.

Contractor to DOE, OIT, and Oakridge National Labs; 2000 – present. The contract provides for delivery of compressed air system expert services. Responsibilities include development of training curricula, and course development of DOE – CAC Qualified AIRMaster+ Specialists program. Perform compressed air system assessments and end user training.

Compressed Air Challenge; 1998 – Present. A member serving on several teams that develop, review, and update course material. Core Instructor assisting in course development for; Fundamentals (Level 1), and Advance (Level 2) material. Also a member serving on other technical review committees; Design (Level 3), Best Practices, and AIRMaster+ Training.

Instructor Experience

Compressed Air Challenge® Fundamentals & Advanced Instructor

US Department of Energy Qualified AIRMaster+ Senior Instructor

EPIC Educational Program Innovations Center – Mississauga (Toronto) Ontario

CIPEC Canadian Industry Program for Energy Conservation – Sponsor, Manitoba Hydro Compressed Air Systems Management Seminar

UNIDO United Nations Industrial Development Organization – Industrial Motor Systems Efficiency Project, Co-Author and Sr. Instructor compressed air system optimization expert training.

National Energy Agency (NEA) Singapore – instructor for the Singapore Environment Institute (SEI) Advanced Compressed Air Systems workshop

Publications, Awards, and Seminars

- “Breakdown Barriers to Industrial Energy Efficiency”, Applied Technology and the role of Industrial Energy System Assessment Standards – Lead Author 2011 Summer Study on Energy Efficiency in Industry
- “Guiding Principles for Successfully Implementing Industrial Energy Assessment Recommendations”, April 2011. Contributor to Assessment-to-Implementation Best Practices Workshop; US Dept of Energy Industrial Technologies Program

- "To VSD or Not to VSD, Determine the best configuration to regulate compressed air pressure", co-author article written for Plant Services Magazine; March 2011
- Compressed Air Storage and Distribution – Contributor to "Encyclopedia of Energy Engineering"; 2007 Taylor & Francis Group, LLC; New York, NY
- Measure it, See it, Manage it: "Using real time data to benchmark, optimize, and sustain system energy efficiency" Lead Author paper 2007 Summer Study on Energy Efficiency in Industry, American Council for an Energy-Efficient Economy; July 2007
- Vital Signs – Compressed Air System Measurement, article written for Plant Services Magazine; Jan 2001
- Compressed Air Management, Energy Efficiency in Compressed Air Systems © 1998
- Co-Recipient of Energy User News "Efficient Building Award" November 20, 1997
- Conducted a series of trainings with Niagara Mohawk Power Corp.; Energy Efficiency in Compressor Systems, Industrial Seminar Jun – Nov 1997
- Delivered seminar to United Technologies Corporation Energy Council Compressed Air Subcommittee; November 1995, Seminar 1.5 hours
- Published Facilities Solutions Series, article co-author with John Hopp of Carrier Corporation May 1995, NY State Facilities Journal
- Published Article Compressed Air Systems are Big Money Drains, article New York State Facilities Journal; November 1994
- Conducted Erie Engineering Societies Council; Compressed Air Demand Management, 2/22/94 Seminar
- Fluid Power Society, President Chapter 21 Syracuse, NY; 1980 – 1981

1999 Office of Industrial Technologies Case Study Team leader for compressed air system audit performed at Caterpillar Fuel Systems, Pontiac IL. Air system improvement project was implemented based on recommendations of a detailed air system audit conducted in two phases January and March of 1999. Project results improved production rate of a critical automated assembly line by 18%, direct energy and operating cost savings of \$ 226,000 per year, and overall compressed air cost reduction of 40% per unit of production.

1997 Annual Efficient Building Awards, Energy User News: Major vendor implementing the Carrier Corporation Thompson Road Site award winning compressed air management system. Worked to recommend, design, and provide installation assistance for compressed air system performance control and monitoring equipment. Performed system start-up; commissioning the system including performance tuning, training, and ongoing support. Designed compressed air monitoring equipment interfacing to the Carrier Comfort Network building management system, supplied by Carrier Corporation Building Services Division.

Compressed Air Management Seminars; Conducted a series of seminars in cooperation with Niagara Mohawk Power Corp. to educate industrial compressed air users in opportunities for cost reduction through compressed air management. The seminar was given in six Upstate New York cities, attended by over 100 industrial facilities engineers, managers, and maintenance personnel.

Analysis & Findings: Franklin Buono – v.– Poseidon Air Systems, et al.

Industry Training

- OEM Compressor Application Training: Joy Manufacturing, Atlas Copco, Cooper Turbocompressor, CompAir LeROI, Kobelco NW
- Atlas Copco Advanced Product Seminar 8/1/94
- Atlas Copco Compressor Service Training, GA Series 3/11/87, Z Series 3/9/89
- EG&G Rotron Regenerative Blower Factory Seminar 9/18/93
- Rietschle Vacuum Pumps Product and Applications 10/24/94
- OEM Air Dryer Training: Van-Air Systems, Pneumatech Inc.
- OEM Pneumatic System Design Training: Rexroth Pneumatics (WABCO)
- OEM Hydraulic System Design Training: Racine Hydraulics, Fluid Controls Inc. (Danfoss), Schroeder Brothers Filtration
- OEM Heat Exchanger Application Training: ITT Standard
- Buffalo Forge Industrial Fans and Ventilation; 6 Month Application Engineering Training

Professional membership and activity

AFE, Association of Facilities Engineering

ASME, American Society of Mechanical Engineers; Co-Vice Chair ASME Project Team EA-4 – Energy Assessment for Compressed Air Systems

International Standards Organization (ISO) Energy Management work group; Air compressors and compressed air systems, TC118/SC6/WG4.

Past President Chapter 21 of the Fluid Power Society

Core Level Instructor and Technical Committee Member, of Compressed Air Challenge.

Community activities

Fire Chief, Belgium Cold Springs Volunteer Fire Department, Baldwinsville, NY (1996 and 1997)

Volunteer Firefighter; (1980 to present) – Assistant Chief (1989 to 1996)

Emergency Medical Technician, Critical Care Level (1982 - 1999)

References

On Request

Appendix W. Glossary

1. Acronyms & Abbreviations

1.1. AHJ (NFPA 10 §3.2.2)

Authority Having Jurisdiction

1.2. DOE

U.S. Department of Energy

1.3. DOT (NFPA 10 §3.3.8)

U.S. Department of Transportation

1.4. NFPA (<https://www.nfpa.org>)

National Fire Protection Association®

1.5. PHMSA (<https://www.phmsa.dot.gov>)

Pipeline and Hazardous Materials Safety Administration

2. Definitions

2.1. Approved. (NFPA 10 §3.2.1)

Acceptable to the authority having jurisdiction.

2.2. Agent, Wet

See Wet Chemical § 2.36 Wet Chemical. (NFPA 17A §3.3.22)

2.3. Authority Having Jurisdiction. (AHJ) (NFPA 10 §3.2.2)

An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

2.4. Cause (Merriam-Webster Dictionary 11 ed.^{vi})

Something that brings about an effect or result.

2.5. Cause (Causal Factor). (DOE-NE-STD-1004-92^{vii})

A condition or an event that results in an effect (anything that shapes or influences the outcome).

2.6. Cause (Direct Cause). (DOE-NE-STD-1004-92^{vii})

The cause that directly resulted in the occurrence. (DOE-NE-STD-1004-92^{vii}) (DOE-NE-STD-1004-92^{vii})

2.7. Cause (Contributing Cause). (DOE-NE-STD-1004-92 ^{vii})

See below 2.9 Contributing Factor

2.8. Cause (Root Cause). (DOE-NE-STD-1004-92 ^{vii})

The cause that, if corrected, would prevent recurrence of this and similar occurrences. The root cause does not apply to this occurrence only, but has generic implications to a broad group of possible occurrences, and it is the most fundamental aspect of the cause that can logically be identified and corrected. There may be a series of causes that can be identified, one leading to another. This series should be pursued until the fundamental, correctable cause has been identified. (DOE-NE-STD-1004-92 ^{vii})

2.9. Contributing Factor (aka Contributing Cause). (DOE-NE-STD-1004-92 ^{vii})

Contributing Cause (Contributing Factor). A cause (factor) that contributed to an occurrence but, by itself, would not have caused the occurrence.

2.10. Contributing Factor Chain (aka Causal Factor Chain). (DOE-NE-STD-1004-92 ^{vii})

Causal Factor Chain (Sequence of Events and Causal Factors). A cause and effect sequence in which a specific action creates a condition that contributes to or results in an event. This creates new conditions that, in turn, result in another event. Earlier events or conditions in a sequence are called upstream factors.

2.11. Cylinder. (NFPA 10 §3.3.7.2 Low-Pressure Cylinder)

Cylinders containing fire extinguishing agent (medium), nitrogen, compressed air, or other compressed gases at a service pressure of 500 psi (3447 kPa) or lower at 70°F (21 °C).

2.12. Manual. (NFPA 17-A §3.3.9)

3.3.9.1 * Manufacturer's Design, Installation, and Maintenance Manual. The document referenced for design, installation, and maintenance of the listed wet chemical extinguishing system equipment.

3.3.9.2 Owner's Manual. A pamphlet containing the manufacturer's recommendations for inspection and operation of the extinguishing system.

2.13. Maintenance. (NFPA 17-A §3.3.8)

Work, including, but not limited to, repair, replacement, and service, performed to ensure that equipment operates properly. [72,2016]

2.14. National Fire Protection Association® (NFPA).

The National Fire Protection Association® (NFPA) is a global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards (<https://www.nfpa.org/About-NFPA>).

NFPA and National Fire Protection Association are registered trademarks of the National Fire Protection Association, Quincy, Massachusetts 02169.

2.15. NFPA 10.

NFPA 10 Standard for Portable Fire Extinguishers

2.16. NFPA 17.

NFPA 17, Standard for Dry Chemical Extinguishing Systems, 2017 edition.

2.17. NFPA 17A.

NFPA 17A, Standard for Wet Chemical Extinguishing Systems, 2017 edition.

2.18. NFPA 72®.

NFPA 72®, National Fire Alarm and Signaling Code, 2016 edition.

2.19. NFPA 96.

NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, 2017 edition.

2.20. Pipeline and Hazardous Materials Safety Administration (PHMSA).

An operating administration with-in the U.S. Department of Transportation. PHMSA's mission is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives. To do this, the agency establishes national policy, sets and enforces standards, educates, and conducts research to prevent incidents. The agency also prepares the public and first responders to reduce consequences if an incident does occur.

2.21. Recharge. (NFPA 17-A §3.3.14)

The replacement of the extinguishing agent and expellant gas.

2.22. Root. (Merriam-Webster Dictionary 11 ed.^{vi})

Something that is an origin or source.

2.23. Servicing. (NFPA 17-A §3.3.15)

Performing maintenance, recharging, or hydrostatic testing.

2.24. Tank.

See Cylinder § 2.4

2.25. Cause (Merriam-Webster Dictionary 11 ed.^{vi})

Something that brings about an effect or result.

2.26. Cause (Causal Factor). (DOE-NE-STD-1004-92 ^{vi})

A condition or an event that results in an effect (anything that shapes or influences the outcome).

2.27. Cause (Direct Cause). (DOE-NE-STD-1004-92 ^{vi})

The cause that directly resulted in the occurrence. (DOE-NE-STD-1004-92 ^{vi}) (DOE-NE-STD-1004-92 ^{vi})

2.28. Cause (Contributing Cause). (DOE-NE-STD-1004-92 ^{vi})

See below 2.9 Contributing Factor

2.29. Cause (Root Cause). (DOE-NE-STD-1004-92 ^{vi})

The cause that, if corrected, would prevent recurrence of this and similar occurrences. The root cause does not apply to this occurrence only, but has generic implications to a broad group of possible occurrences, and it is the most fundamental aspect of the cause that can logically be identified and corrected. There may be a series of causes that can be identified, one leading to another. This series should be pursued until the fundamental, correctable cause has been identified. (DOE-NE-STD-1004-92 ^{vi})

2.30. Contributing Factor (aka Contributing Cause). (DOE-NE-STD-1004-92 ^{vi})

Contributing Cause (Contributing Factor). A cause (factor) that contributed to an occurrence but, by itself, would not have caused the occurrence.

2.31. Contributing Factor Chain (aka Causal Factor Chain). (DOE-NE-STD-1004-92 ^{vi})

Causal Factor Chain (Sequence of Events and Causal Factors). A cause and effect sequence in which a specific action creates a condition that contributes to or results in an event. This creates new conditions that, in turn, result in another event. Earlier events or conditions in a sequence are called upstream factors.

2.32. Cylinder. (NFPA 10 §3.3.7.2 Low-Pressure Cylinder).

Cylinders containing fire extinguishing agent (medium), nitrogen, compressed air, or other compressed gases at a service pressure of 500 psi (3447 kPa) or lower at 70°F (21 °C).

2.33. Trained. (NFPA 17-A §3.3.18)

A person who has undergone the instructions necessary to safely design, install, and reliably perform the maintenance and recharge service in accordance with the manufacturer's design, installation, and maintenance manual. [17, 2017]

2.34. U.S. Department of Transportation (DOT). (NFPA 17A §3.3.20)

The department that has jurisdiction over the design and transportation of compressed gas cylinders and cartridges in the United States.

2.35. Wet Agent.

See Wet Chemical § 2.36 Wet Chemical. (NFPA 17A §3.3.22)

2.36. Wet Chemical. (NFPA 17A §3.3.22)

Normally an aqueous solution of organic or inorganic salts or a combination thereof that forms an extinguishing agent.

Analysis & Findings: Franklin Buono – v.– Poseidon Air Systems, et al.

January 8, 2020

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By: Data Power Services, LLC – Tom Taranto

Appendix X. References and End Notes

NFPA 10 *Standard for Portable Fire Extinguishers*, National Fire Protection Association 2018 Edition.

NFPA 17 *Standard for Dry Chemical Extinguishing Systems*, National Fire Protection Association 2017 Edition.

NFPA 17A *Standard for Wet Chemical Extinguishing Systems*, National Fire Protection Association 2017 Edition.

Office of Nuclear Energy; DOE Guideline "Root Cause Analysis Guidance Document", Feb 1992 DOE-NE-STD-1004-92; U.S. Dept. of Energy, Washington, DC

Latino, Mark A. and Latino, Robert J. and Latino, Kenneth C., *Root Cause Analysis Improving Performance for Bottom-Line Results*, 5th ed. Boca Raton, FL, CRC Press, Taylor & Francis Group, 2019

ⁱ Thomas Publishing Company 2019. "About Tyco Fire Protection Products" Company Description by ThomasNet. <https://www.thomasnet.com/profile/30320066/tyco-fire-protection-products.html> (accessed 23-Oct-2019)

ⁱⁱ PYRO-CHEM Kitchen Knight™: Restaurant Fire Suppression System – PCL-240/350/550 Technical Manual PN PC98204 [Bates: TFP-280809-000001 to TFP-280809-000060] NOTE: Dates are indicated on individual pages.

ⁱⁱⁱ PYRO-CHEM Kitchen Knight® II: Restaurant Fire Suppression System – PCL-300/460/600 Technical Manual No. PN551274 [Bates: "TFP-280809-000061 to TFP-280809-000113] Dated October 1, 2001

^{iv} Thompson Reuters 2019, <https://corporate.findlaw.com>, "Legally Adequate Warning Labels: A Conundrum for Every Manufacturer"; <https://corporate.findlaw.com/litigation-disputes/legally-adequate-warning-labels-a-conundrum-for-every.html> (accessed 23-Oct-2019)

^v Evaluation of Ruptured Fire Suppression Tank OSHA Inspection Number: 1125359 "Figure 2: Markings on the tank from manufacturer." [Bates; Buono-Osha-0083]

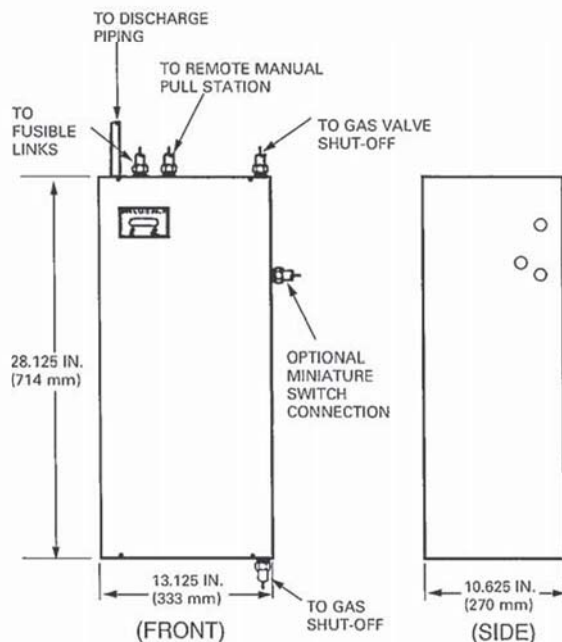
^{vi} Merriam-Webster's Collegiate Dictionary, 11th ed., Merriam-Webster, 2003

^{vii} Office of Nuclear Energy; DOE Guideline "Root Cause Analysis Guidance Document", Feb 1992 DOE-NE-STD-1004-92; U.S. Dept. of Energy, Washington, DC

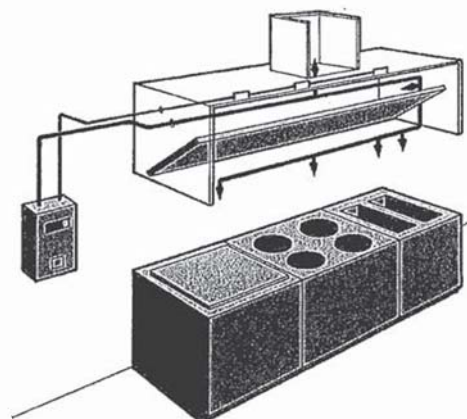
DATA SHEET

**Pyro-
Chem****KITCHEN KNIGHT II
Restaurant Fire
Suppression System****Features**

- UL and ULC Approved
- Complies with NFPA Standard 17A and 96
- Meets the requirements of the Building Officials and Code Administrators (BOCA)
- Meets the requirements of the International Building Code (IBC)
- Approved by the New York City Fire Department by Certificate of Approval (COA) #5719
- CE Marked

OPTIONAL CYLINDER ENCLOSURE

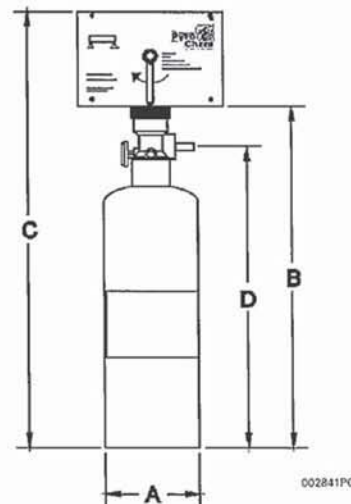
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004212

General

The KITCHEN KNIGHT II Restaurant Kitchen Fire Suppression System is a pre-engineered solution to appliance and ventilating hood and duct grease fires. The system is designed to maximize hazard protection, reliability, and installation efficiency. Automatic or manual system activation releases a throttle discharge of potassium carbonate solution on the protected area in the form of fine droplets to suppress the fire and help prevent re-ignition after the discharge is complete.



002841PC

Model No.	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Flow Point Capacity	Weight lb (kg)	Mounting Bracket Used
PCL-160	8.00 (203)	17.75 (451)	23.50 (597)	15.44 (392)	5	34 (15)	MB-15
PCL-300	8.00 (203)	25.06 (637)	30.81 (783)	22.75 (578)	10	53 (24)	MB-15
PCL-460	10.00 (254)	25.06 (637)	30.81 (783)	22.75 (578)	15	83 (38)	MB-15
PCL-600	10.00 (254)	35.81 (910)	41.56 (1,056)	33.50 (851)	20	108 (49)	MB-1

System Operation

The KITCHEN KNIGHT II Restaurant Kitchen Fire Suppression System has been designed for protecting kitchen hood, plenum, exhaust duct, grease filters, and cooking appliances (such as fryers, griddles, rangetops, upright broilers, charbroilers and woks) from grease fires. The versatile state-of-the-art wet chemical distribution technique, combined with dual, independent activation capability – automatic fusible link or manual release – provides efficient, reliable protection the moment a fire is detected. Once initiated, the pressurized wet chemical extinguishing agent cylinder discharges a potassium carbonate solution through a pre-engineered piping network and out the discharge nozzles. The wet chemical discharge pattern is maintained for a duration of time to ensure suppression and inhibit re-ignition. Expanded capability provides remote manual actuation, gas equipment shutdown, and electrical system shutdown. This optional equipment will enhance the basic system functions and be applicable when designing custom configurations to suit a particular customer's needs and/or comply with local codes.

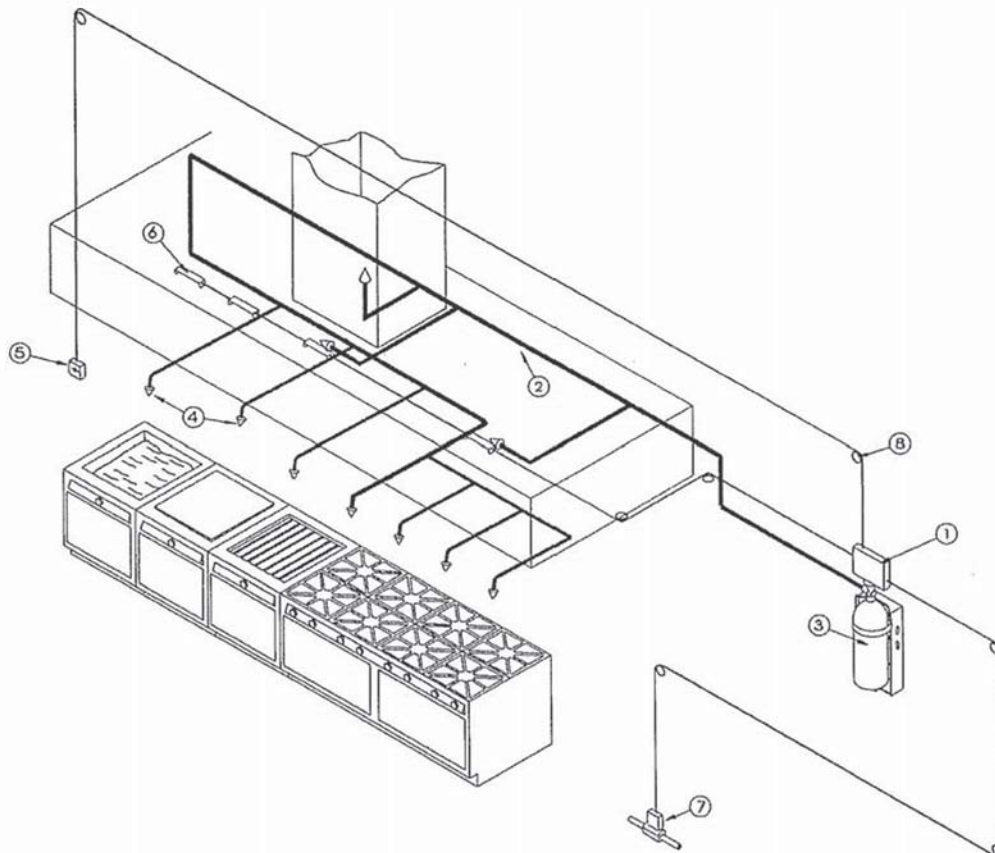
The operating temperature range of the PYRO-CHEM KITCHEN KNIGHT II System is 32 °F to 120 °F (0 °C to 49 °C).

Suggested Architect's Specifications

The fire suppression system shall be of the stored pressure, wet chemical pre-engineered fixed nozzle type manufactured by Johnson Controls. A carbon dioxide cartridge shall be used as the pneumatic releasing device for the system. The cartridge shall be an integral part of the control head assembly. The wet chemical storage cylinder shall be a DOT-rated cylinder for stored pressure of 225 psig (15.5 bar), and a pressure gauge shall be provided on the cylinder valve for visual inspection. The system shall be capable of automatic and manual actuation. Automatic actuation shall be provided by an appropriate number of fusible link detectors mounted in series on a stainless steel wire input line to the control head. Manual actuation shall be provided by turning a handle on the cylinder control head cover, if available, and/or remotely by a cable operated pull station with a dedicated stainless steel line connected between the pull station and the control head mechanism.

The system shall have been tested to the UL Standard for Fire Extinguishing Systems for Protection of Restaurant Cooking Area, UL300, and Listed by Underwriters Laboratories, Inc. It shall be installed in accordance with the National Fire Protection Association standards, NFPA 17A Standard for Wet Chemical Systems, and NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, and comply with all local and/or state codes and standards. Refer to PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System Manual, Part No. 551274, for detailed installation and maintenance instructions.

Typical Installation



Typical Installation (Continued)

1. **Cylinder Control Head** – Integral design allows direct connection of the actuation pressure cylinder to the control head without the need of high pressure hose or pipe. Separate wire cable activation lines for automatic fusible links and remote pull station provide an added measure of safety. Unique technique for achieving necessary input wire cable tension.
2. **Piping** – Unbalanced piping network simplifies application design and installation. Requires no additional piping to connect system pressure cylinder to extinguishing agent container. Schedule 40 black iron, chrome-plated, or stainless steel pipe can be used.
3. **Cylinders** – Contain PYRO-CHEM Potassium Carbonate wet chemical solution stored at 225 psig (15.5 bar). Includes pressure gauge for visual maintenance checks. 1.6, 3.0, 4.6, and 6.0 gallon sizes provide 5, 10, 15, and 20 flow point coverage respectively, offering a broad range of application coverage.
4. **Nozzles** – Can be fixed or fitted with a swivel adaptor allowing the nozzle to be rotated approximately 30° in all directions.
5. **Remote Manual Pull Station** – Simple operating instructions with double action release minimizes accidental manual operation of the system. Maximum limitations of 150 ft (45.7 m) cable run with 1/16 in. cable and 40 corner pulleys apply. A dedicated wire cable input line to the cylinder control head provides manual operation in addition to automatic operation utilizing fusible link detection.
The pull station is compatible with flexible conduit.
6. **Fusible Link Detection Equipment** – Accommodates both series and terminal placement to minimize inventory and simplify ordering. All necessary components are included for efficient assembly and installation. Fusible links rated for maximum ambient temperature must be ordered separately. Maximum limitations of 20 fusible links on a 150 ft (45.7 m) cable run with 40 corner pulleys provide substantial hazard coverage.

7. **Automatic Gas Shut-Off Valve** – Complies with requirements pertaining to the shut off of fuel as described by NFPA 17A. Can be reset at control head after regular maintenance/service check for convenience of service technician. Maximum limitations of 100 ft (45.7 m) cable run with 30 corner pulleys provide mounting flexibility.

The gas shut-off valve is compatible with flexible conduit.

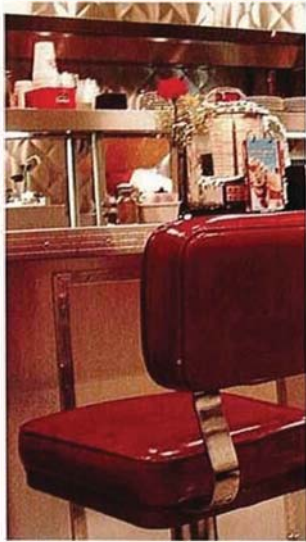
8. **Corner Pulleys And Accessories** – Designed to ensure reliable system function as tested by Underwriters Laboratories.
9. **Agent Distribution Hose (Not Shown)** – Kitchen appliances manufactured with or resting on caster (wheels/rollers) include an agent distribution hose as a component of the suppression system. This allows the appliance to be moved for cleaning purposed without disconnecting the appliance fire suppression protection. The hose assembly includes a restraining cable kit to limit the appliance movement within the range (length) of the flexible hose.
10. **Flexible Conduit (Not Shown)** – Flexible conduit allows for quicker installations and the convenience of being able to route the cable over, under and around obstacles. Flexible conduit can be used as a substitute for standard EMT conduit or can be used with EMT conduit.

Flexible conduit can be used only with the Remote Manual Pull Station and Mechanical Gas Valves.

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

PYRO-CHEM, KITCHEN KNIGHT, and the product names listed in this material are marks and/or registered marks. Unauthorized use is strictly prohibited.

PRODUCT OVERVIEW



KITCHEN KNIGHT II Fire Suppression System

Maximize kitchen hazard protection, reliability and installation efficiency

- Customized appliance-specific design
- Wet agent technology
- Rapid flame knock-down
- Helps prevent reflash
- Flexible piping configurations
- Automatic detection and actuation
- Gas shut off valve
- UL/ULC listed

A mixture of flammable oils and greases with high efficiency heat sources creates an environment where restaurant and food service kitchen fires are continually a threat. With its wet agent technology, the PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System provides flexible, effective fire protection.

Time-Tested Kitchen Hazard Protection

The KITCHEN KNIGHT II Restaurant Fire Suppression System is a pre-engineered solution to appliance, ventilating hood and duct fires. The system employs a potassium carbonate-based wet agent that knocks down flames, cuts off air to the burning grease and cools the hazard area to help prevent reflash.

The system is designed to protect cooking appliances such as fryers, griddles, range tops, upright broilers, charbroilers and woks; and associated ventilating equipment including kitchen hoods, plenums, exhaust ducts and grease filters.

System Design Accommodates Kitchen Design

The KITCHEN KNIGHT II system is available in a variety of sizes suited to fit specific needs with flexibility to accommodate changes to appliance layout or the expansion of a cooking area. Flexible piping configurations offer a streamlined design that preserves valuable kitchen space.

The flexible agent distribution hose provides the freedom to clean beneath and behind castered appliances without disconnecting fire suppression piping. The hose allows up to 3 ft. (0.9 m) of movement and is supplied with a restraining cable to help prevent over-extension.

The system complies with NFPA Standard 17A and 96. Additional approvals and listings include UL, ULC, and NYC COA.





APPLICATIONS FOR THE KITCHEN KNIGHT II FIRE SUPPRESSION SYSTEM

Diners
Cafes
Casual and fine dining
Convenience stores
Delis
Fast food
Food courts
Food trailers and trucks

Guarding Hazard Areas 24/7

The KITCHEN KNIGHT II system provides efficient, reliable protection the moment a fire is detected via a versatile wet chemical distribution network, combined with dual, independent actuation capability. Automatic or manual system actuation releases a discharge of agent on the protected area in the form of fine droplets to suppress fire and help prevent reflash. The dedicated manual pull station allows immediate actuation and provides backup to the automatic detection system.

For added protection, KITCHEN ONE K-Class hand portable fire extinguishers, which utilize the same wet chemical agent, may be used as a backup to the system.

Superior Fire Protection for Countless Applications

Restaurant kitchens, gas stations, paint spray booths and countless other commercial and industrial applications are protected by PYRO-CHEM automatic suppression systems and fire extinguishers. Ask your Authorized PYRO-CHEM Distributor to provide the right solution for your fire protection challenges.

A Passion for Protection

Dedicated customer support. Extensive product portfolio. Engineering excellence. Trusted, proven brands. Johnson Controls offers all of these attributes, plus a passion for protection. It's what drives us to create solutions to help safeguard what matters most – your valued people, property and business.

Integrated Fire Protection Company Profile – Atlanta GA

<http://integratedfireprotection.com/restaurant-kitchens-markets/>



Restaurant / Kitchen Fire Suppression

Expertise in Restaurant / Kitchen Fire Suppression Systems

In today's restaurants and commercial kitchens, the use of high-temperature cooking oils, solid fuels and high-efficiency kitchen equipment allows more food to be produced faster. However, along with the speed and efficiency come increased fire hazards. Kitchen fire suppression systems are designed to detect and extinguish fires in the duct, plenum and/or appliances located under the kitchen hood. The expert staff at Integrated Fire Protection® will work with you to select and size the appropriate kitchen suppression system to match your needs and budget. Integrated Fire Protection® is proud to offer several of the most trusted and respected manufacturers in our industry.

Once the kitchen suppression system is installed, the professionals at Integrated Fire Protection® will help keep your restaurant safe and open for business through proper inspection, testing and maintenance. So, whether we guide you from initial consultation, design and installation or you have an existing Ansul system, or any other brand (Amerex, PyroChem or RangeGuard, you can be assured our ICC- (International Code Council) certified technicians will provide you with superior service and care.

Code Reference

NFPA 17A (Standard for Wet Chemical Extinguishing Systems)
NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations)

Products and Services:

All Products and Services
Portable Fire Extinguishers
Exit and Emergency Lighting
Restaurant/Kitchen Fire Suppression
Fire Sprinkler Systems
Fire Alarm Systems
Special Hazard Fire Protection
Emergency Communication Systems
Security Systems
Video Surveillance Systems
Access Control
Monitoring
General Products

We Proudly Represent:

<http://integratedfireprotection.com/company-profile/>



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Top Industry Solutions

Integrated Fire Protection® provides our clients solutions from Engineering, Design, Fabrication, Installation, to Inspection, Testing and Maintenance of all Fire and Life Safety Systems. We are Authorized Dealers of the Following Manufacturers:

Fike

PROTECTOWIRE®
Fire Systems

SEVCI SYSTEMS
Safe Environmental Choice

Gamewell
FIRE CONTROL
INSTRUMENTS
by Honeywell

VIGILANT
Fire & Life Safety
ADVANCED READY

CWSI
commercial wireless systems international

HOCHIKI
america corporation

VIKING

GLOBE
FIRE SPRINKLER CORPORATION

Reliable
TECHNOLOGY • QUALITY • SERVICE

Kidde
A Kidde Group

BADGER
Fire Protection

RANGE
GUARD
THE WET CHEMICAL SYSTEM

BROOKS
EQUIPMENT

BUCKEYE
EQUIPMENT

POTTER
ROEMER
FIRE PRO

over a decade, and they consistently perform at a very high level. Due to the nature of our business, missed inspections are not an option. We are subject to rigorous oversight by regulatory agencies and, as such, the relationship we have with Integrated Fire Protection® is very important to our business operations."



"In working with Integrated Fire Protection® for nearly 14 years, we have found them to be a trusted vendor that provides our operation with the support we need to ensure we are kept compliant with all Fire and Life Safety codes. Integrated Fire Protection® seamlessly manages all facets of our fire protection systems, covering our entire Georgia campus."

chico's

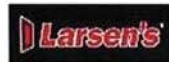
"We have been working with Integrated Fire Protection® for well over a decade and have an outstanding working relationship. They consistently execute the service that we need to keep our plant safe and up to code. They are a trusted service provider that we can depend on."

<http://integratedfireprotection.com/company-profile/>



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We also sell and service other industry brands such as:



In choosing to partner with an industry-leading Total Solutions Provider like Integrated Fire Protection®, you will receive our comprehensive products and services professionally performed by our own certified, licensed, uniformed and badged employees. We commit to deliver our products and services with the highest level of excellence and professionalism. We value our long-standing client relationships and take the business of protecting lives and property very seriously.



"Thank you so much for getting out and repairing [our systems] so quickly. I really appreciate that you were able to work so quickly and recognized the challenges you were up against at the time."

Facility Manager

"Your crew was phenomenal and we are so appreciative of you!"

Property Manager

"Your guys did fantastic! The guys were great and worked very hard."

Property Manager

Fire Systems Inc Installations, inspections, and maintenance

<https://firesystems.net/installation/kitchen-hood-installation/>



SERVICES

INSTALLATION

ABOUT

INDUSTRIES

CONTACT



KITCHEN HOOD SUPPRESSION SYSTEM INSTALLATIONS

Fire Systems, Inc. installs premier kitchen hood fire suppression systems from Kidde and Amerex. All of our technicians are factory trained and licensed with the State of Georgia Fire Marshall's office. Experience is extremely important when choosing someone to install your fire system. Fire Systems, Inc. has been installing restaurant fire systems since 1988. Call one of our factory trained professionals for an estimate today.

Commercial kitchens contain all the elements necessary for a fire. Grease and cooking oils provide the fuel. Oxygen is always available and heat can come from a variety of sources like an open cooking flame or electrical shorts. Fire spreads quickly over cooking surfaces and to hard-to-reach areas like hoods, plenums, vents and ductwork.

These systems must be inspected routinely in accordance with NFPA 17A. We perform all necessary inspections and maintenance on all types of kitchen hood systems.

Commercial cooking areas cannot afford an interruption in operation caused by a fire. Insurance statistics prove that if a restaurant has a fire, it may never reopen; those that do have lost time and money in the form of personal injury treatment, equipment replacement and higher insurance rates.

Kitchen fire suppression systems are pre-engineered, UL 300 compliant, automatic systems that protect the following areas:

Kitchen hoods

Ducts

Plenums

Filters

Fryers

Griddles

Range Tops

Broilers

Char-broilers and Woks

<https://firesystems.net/inspections/kitchen-hood/>



Inspections are performed using Fire Systems technicians—with no sub-contracting; this gives us better control over the quality of service we are able to provide.



KITCHEN HOOD SUPPRESSION SYSTEM INSPECTIONS

Commercial kitchens contain all the elements necessary for a fire. Grease and cooking oils provide the fuel. Oxygen is always available, and heat can come from a variety of sources like an open cooking flame or electrical shorts. Fire spreads quickly over cooking surfaces and to hard-to-reach areas like hoods, plenums, vents and ductwork.

These systems must be inspected routinely in accordance with NFPA 17A. **We perform all necessary inspections and maintenance on all types of kitchen hood systems.**

Commercial cooking areas cannot afford an interruption in operation caused by a fire. Insurance statistics prove that if a restaurant has a fire, it may never reopen; those that do have lost time and money in the form of personal injury treatment, equipment replacement and higher insurance rates.

In recent years, the development of high-efficiency cooking appliances and a switch to vegetable cooking oils have increased the threat and occurrence of fires that are more difficult to extinguish. Since many commercial kitchens operate long hours and are staffed with people untrained in firefighting, it is imperative to have a fire protection system that combines both automatic fire depletion and suppression.



OWNER'S GUIDE

PYRO-CHEM® KITCHEN KNIGHT® II RESTAURANT FIRE SUPPRESSION SYSTEM

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The National Fire Protection Association (NFPA) recommends that employees be instructed in personal safety and the operation of the system. PYRO-CHEM® provides this owner's guide with each Restaurant Fire Suppression System.

This owner's guide has been provided to help you understand:

- How your restaurant system works
- Your responsibilities for maintenance
- What to do in case of fire

This owner's guide is not intended to cover all requirements detailed in the Installation, Operation, Recharge, Inspection, and Maintenance Manual, Part No. 551274. This guide is solely for the use of the end-user to become more knowledgeable with the fire suppression system and the steps necessary in the event of a fire.

Should the end-user want to find out more information concerning the KITCHEN KNIGHT® II Restaurant Fire Suppression System, your authorized distributor can furnish a detailed Installation, Operation, Recharge, Inspection, and Maintenance Manual.

YOUR ROLE IN FIRE PROTECTION

Your PYRO-CHEM Fire Suppression System is of the highest quality. It has been carefully engineered to be reliable, manufactured to exacting standards, and custom designed to protect your particular hazard.

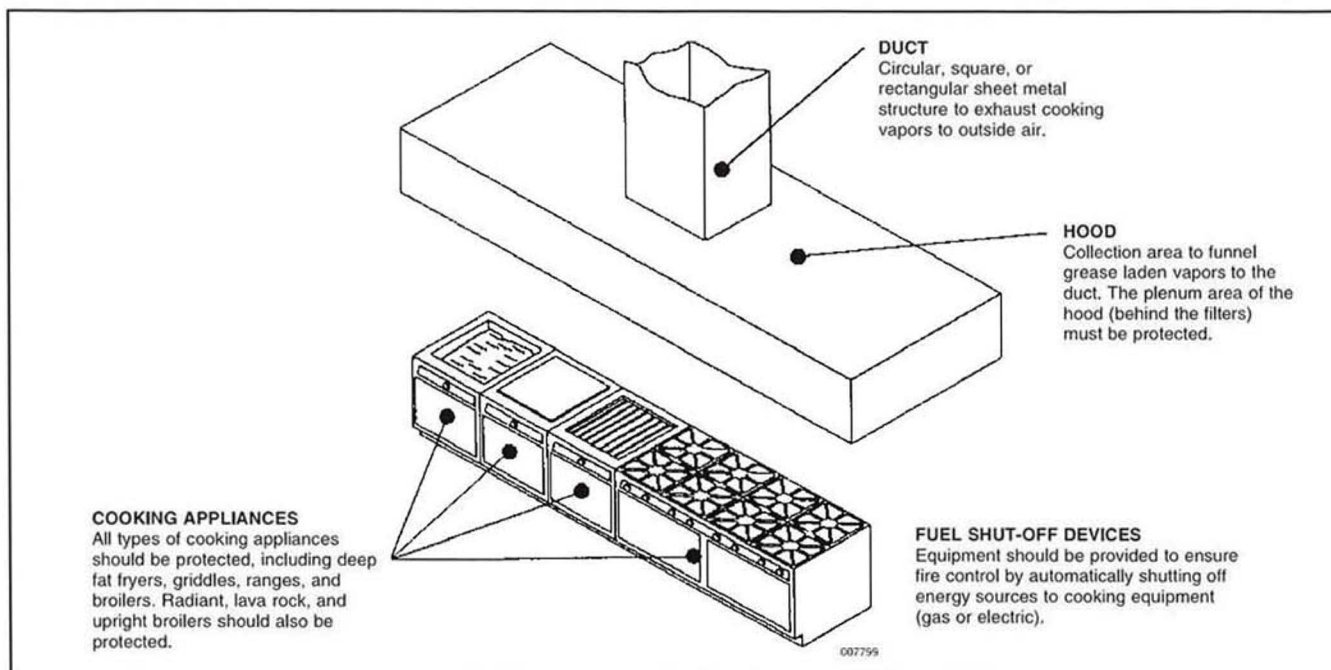
If properly maintained, your system should provide years of protection. However, the primary objective of this guide is to provide enough basic information to help you to prevent a disastrous fire. By observing some fundamental rules, you can greatly reduce the risk of serious fire damage.

1. Keep all kitchen equipment free of grease build-up.
2. Never use flammable solvents or cleaners. Flammable residues could be left in the hazard area.
3. Never store flammable materials near cooking equipment or gas flue areas.
4. Make certain obstructions, such as utensils, pots, pans, cooking materials, etc. are not stored in areas that can obstruct the fire suppression system discharge.
5. Operate your exhaust system whenever the appliance is pre-heating, heating, cooking or cooling. This helps to prevent excessive heat build-up which could actuate the system.
6. Never operate filter-equipped exhaust systems without the filters in place. Excessive grease may build up in the hood and duct system. Cooking with filters removed can impact air movement and/or temperatures, which may result in system discharge. Use only UL listed filters.
7. Never restrict air intake passages; this can reduce the efficiency of your exhaust system. Cooking with filters that contain excessive amounts of grease can impact air movement and/or temperatures, which may result in system discharge.
8. Operate all UL tested grease extractors by the manufacturer's instructions to ensure effective grease removal from the hood and duct system.
9. Never tamper with the system components (i.e., detectors, nozzles, agent tank assembly(s) or control head(s)).
10. Before you revise your kitchen equipment layout or make changes which affect the basic configuration of the protected area, contact your trained, authorized PYRO-CHEM distributor for a system update evaluation. The system is made up of components tested within limitations contained in the detailed installation manual. The system designer must be consulted whenever changes are planned for the system or area of protection.
11. Do not allow anyone except an authorized PYRO-CHEM distributor to perform maintenance on your PYRO-CHEM system. Maintenance to your system must be performed semi-annually. It is essential that the system be maintained properly.
12. Post operating instructions in an obvious place in the kitchen and make sure your employees know what to do in case of fire.
13. Make certain that hand portable extinguishers are properly placed and compatible with the restaurant system. Class K extinguishers must be provided for hazards where there is a potential for fires involving combustible cooking media (vegetable or animal oils and fats). An authorized PYRO-CHEM distributor can assist your needs.

OWNER'S GUIDE

PYRO-CHEM® KITCHEN KNIGHT® II RESTAURANT FIRE SUPPRESSION SYSTEM

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HOW THE PYRO-CHEM KITCHEN KNIGHT II SYSTEM OPERATES

1. A fire starts in the protected area....
2. Heat sensitive fusible link detectors activate the system.
3. Appliance energy sources are automatically shut off by accessory equipment appropriate for the type of fuel used by your cooking equipment.
4. The fire extinguishing agent is discharged into the plenum and duct and onto the cooking appliances.
5. The agent and the hot grease mix to form a foam. This temporarily seals combustible vapors, helping to inhibit re-ignition. This seal must not be disturbed.

INSPECTING YOUR KITCHEN KNIGHT II SYSTEM

Your PYRO-CHEM KITCHEN KNIGHT II system should be inspected at least monthly. **Should you discover any irregularities, contact an authorized PYRO-CHEM distributor immediately.**

1. Never use corrosive cleaning solutions on the fusible links or cables. Check to make certain there is no corrosion to any of the detection system components. Certain high alkaline cleaners could cause corrosion.
2. Ensure that metal fusible links are replaced semi-annually. Deterioration of these links could cause the system to be actuated or to malfunction in case of a fire.
3. Make certain the releasing unit has not been tampered with, and that visual inspection seals are not broken or missing.

4. At daily intervals check your system for loose pipes and missing or grease-covered nozzle caps. Temporarily remove cap and check to make certain it is not brittle, and snap back onto nozzle. Make certain nozzle caps are in place over the ends of each nozzle.

Note: If caps are damaged or missing, contact the authorized PYRO-CHEM distributor for immediate replacement.

5. Check each metal blow-off cap and make certain the cap can be turned freely on the nozzle.
6. Periodically check your visual indicator on the releasing unit to make certain the system is in set position.
7. Have your system inspected by an authorized PYRO-CHEM distributor at a maximum of 6 month intervals and immediately after major hood and duct cleaning. Often fusible links are wired shut during the cleaning process to prevent accidental activation. This will prevent the system from operating automatically. It's also possible that your system might have been disconnected, damaged, or has accumulated excessive deposits of grease causing your system to become inoperative.
8. Check that the manual pull station is not obstructed, has not been tampered with, and is ready for operation.
9. Make certain that each tank and releasing unit is mounted in an area with a temperature range of 32 °F to 120 °F (0 °C to 49 °C).

OWNER'S GUIDE

PYRO-CHEM® KITCHEN KNIGHT® II RESTAURANT FIRE SUPPRESSION SYSTEM

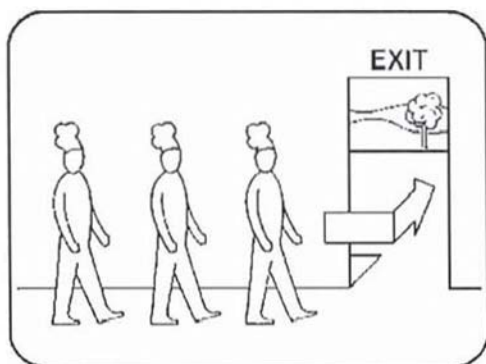
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INSPECTING YOUR KITCHEN KNIGHT II SYSTEM (Continued)

10. Make certain the agent storage tank is not in an area in which the temperature can exceed 120 °F (49 °C) or can be heated to a temperature exceeding 120 °F (49 °C) due to conductivity through heated discharge piping.

IN THE EVENT OF FIRE IN THE PROTECTED AREA

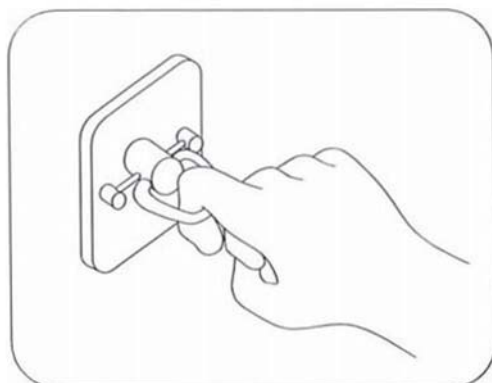
1. Evacuate others from the premises. In a loud, clear voice say: "WE HAVE A FIRE – PLEASE LEAVE THE BUILDING CAREFULLY, BUT QUICKLY."



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2. If the automatic actuation has not yet taken place, operate the system manually as follows:

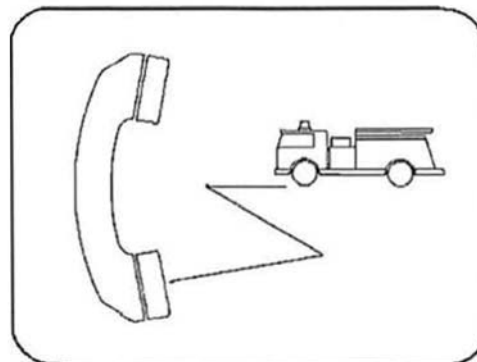
- Pull handle or pull ring straight out on manual pull station with enough force to actuate the fire suppression system.



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Once the fire suppression system is actuated, equipment to shut off the fuel supply to the cooking appliances will operate.

3. Call the local fire department or emergency number.

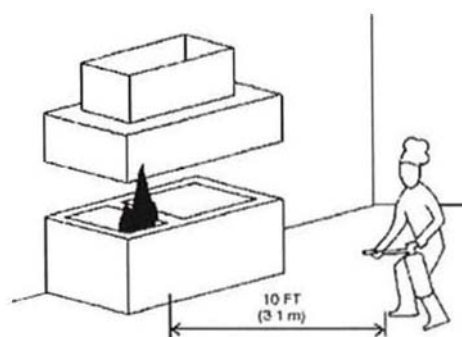


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4. Stand by with a KITCHEN ONE® Wet Chemical hand portable fire extinguisher.

If you need to use it:

- a. Pull pin
- b. Stand back 10 ft (3.1 m)
- c. Aim at base of fire, squeeze handle and sweep side to side



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CAUTION

1. Do not attempt to extinguish a grease fire with a hand portable fire extinguisher before the Fire Suppression System has been manually or automatically actuated.
2. Do not discharge wet chemical agent from the KITCHEN ONE Wet Chemical hand portable fire extinguisher unless the fire suppression system will not operate or a re-flash has occurred.
3. Do not attempt to use a Class ABC Multipurpose Dry Chemical, CO₂, or Water type hand portable fire extinguisher in/on an application with burning cooking oil or grease.

OWNER'S GUIDE

PYRO-CHEM® KITCHEN KNIGHT® II RESTAURANT FIRE SUPPRESSION SYSTEM

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BEFORE RESUMING BUSINESS

1. Immediately after discharge, call your authorized PYRO-CHEM distributor to inspect and recharge your Fire Suppression System.
2. Have your PYRO-CHEM distributor determine the cause of the system actuation.
3. Area must be cleaned up within 24 hours after discharge using warm water and cleaning detergents.

CLEANUP PROCEDURES

Although there is no unusual cleanup procedure for PYRO-CHEM wet agents, due to the alkaline nature of these agents, they should be cleaned from kitchen surfaces within 24 hours after system discharge. The reaction from the wet chemical agent on cooking grease or oil produces a foamy bi-product that can be wiped up with a cloth or sponge. The following procedures should be followed:



CAUTION

- ▶ 1. Before attempting any cleanup, make certain that all fuel sources to the equipment to be cleaned have been shut off. Make certain that the exhaust hood and all appliance electrical controls have been de-energized to avoid any chance of electrical shock resulting from the cleaning process or from electrically conductive alkaline liquid agent and/or its residue.
 - ▶ 2. Make certain all surfaces to be cleaned have cooled down to room temperature.
 - ▶ 3. Do not use water to clean any appliances that contain hot grease or cooking oils. Doing so may result in violent steaming and/or spattering.
-
- ▶ 1. The fire suppression system agent is non-toxic; however, food product and cooking grease/oil that has come in contact with the agent will no longer be suitable for human consumption and should be discarded.
 - 2. Sponge as much of the agent as possible using sponges or clean rags. Dispose of these sponges or rags in a local sanitary land fill site in accordance with local authorities.
- Note:** Wear rubber gloves during cleanup as sensitive skin may become irritated. If the PYRO-CHEM wet agent or its residue comes in contact with skin or eyes, flush thoroughly with clean water.

3. Using hot, soapy water and either a clean cloth or sponge, wipe away all foamy residue and thoroughly scrub all surfaces that have come in contact with the agent.
4. After thoroughly cleaning all affected surfaces, adequately rinse and allow to completely dry before re-energizing the equipment.

WARRANTY

A. PYRO-CHEM KITCHEN KNIGHT II Products

Except as indicated in B below, your KITCHEN KNIGHT II System is warranted to you as the original purchaser for three years from date of delivery against defects in workmanship and material. PYRO-CHEM will replace or repair any metal part which, in its opinion, is defective and has not been tampered with or subjected to misuse, abuse or exposed to highly corrosive conditions.

B. Purchased Products

The following items which are not manufactured but purchased by PYRO-CHEM are warranted against defects resulting from the manufacturer's fabrication, process or parts for one year from the date of purchase: detectors, electric manual pull station, time delay relays, thermostats, solenoids, switches, and fuel shut-off valves. Evaluation of each reportedly defective relay, valve, etc., returned to PYRO-CHEM will be made by the original manufacturer or an agent thereof and their judgment shall be final.

- C. Except as provided in A and B, there are no warranties, express or implied made by PYRO-CHEM, concerning this system. There are no implied warranties of FITNESS FOR PURPOSE OR MERCHANTABILITY. PYRO-CHEM shall have no liability for consequential, special or similar damages.

For repairs, parts and service of the PYRO-CHEM System, contact your local PYRO-CHEM representative, or PYRO-CHEM, Marinette, Wisconsin 54143-2542; 800-526-1079 or (715) 732-3465.

Photos (Figure 1 and Figure 2) taken at inspection 16 April 2016 at Exponent 420 Lexington Ave, Suite 1740 New York, NY 10170

Figure 1 – Photo of Ruptured PCL-300T with Worthington Cylinder – Jefferson 08/98 manufacturing markings



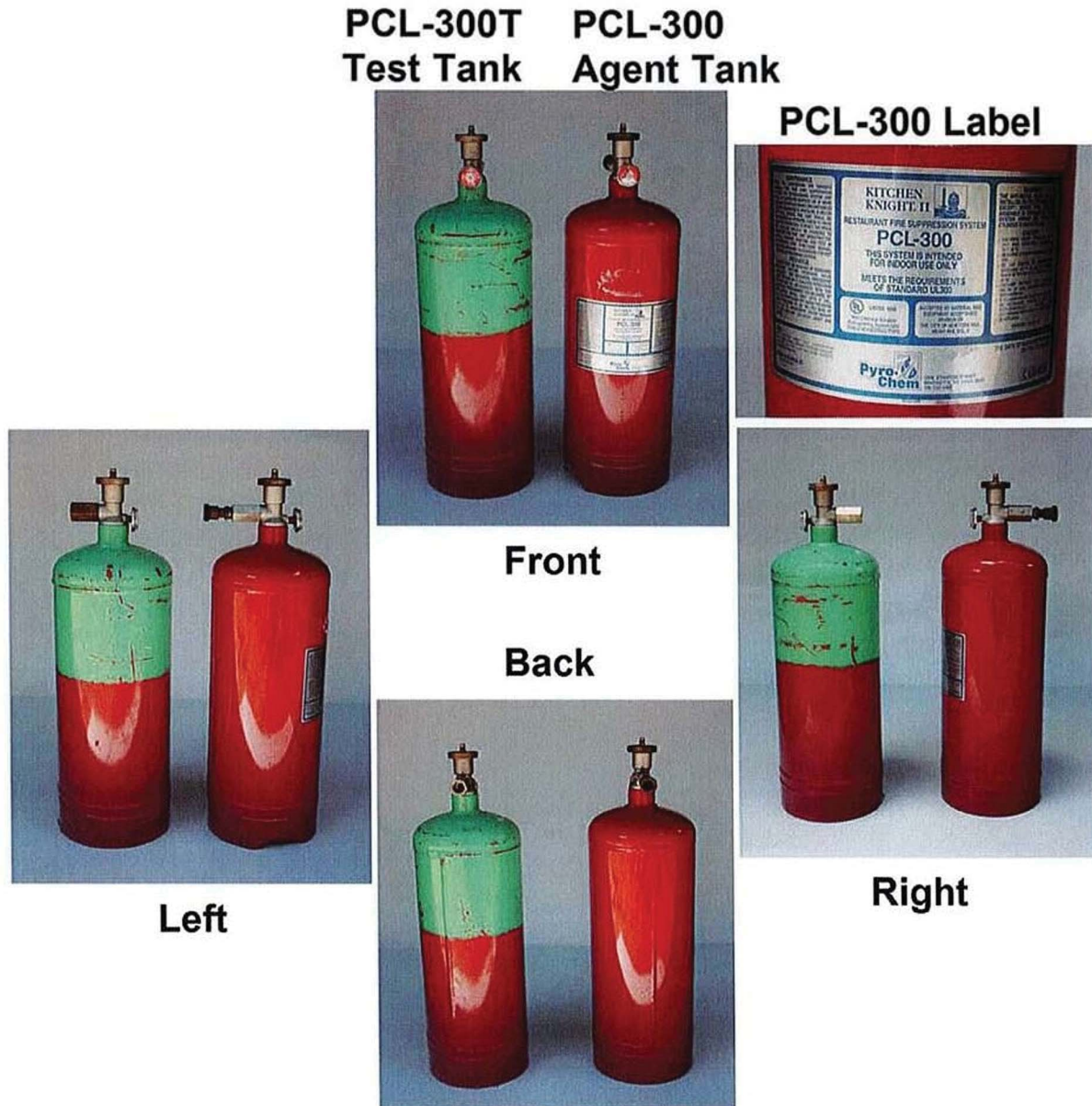
Figure 2 – Photo of Ruptured PCL-300T with required DOT Marking by Worthington Industries



Example Tanks – Front View Left Tank: Tyco Fire Products PCL-300T Test Tank Part No. 551204

– Front View Right Tank: Tyco Fire Products PCL-300 Agent Tank Part No. 551194

Figure 3 PCL-300T Test Tank and PCL 300 Agent Tank multi-views



The Tyco Fire Products PCL-300 Agent Tank part No. 551194 includes DOT cylinder markings (by the cylinder manufacturer) and the Kitchen Knight® II product label by Tyco Fire Products, the Agent Tank manufacturer.

The Tyco Fire Products PCL-300T Test Tank Part No. 551204 included DOT cylinder markings (by the cylinder manufacturer) and does not have a product label identifying Tyco Fire Products as the Test Tank manufacturer.

